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## PRUSSIAN RAILWAY ADMINISTRATION

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The development of the Prussian railway system may be summarized as follows:

I. The period of early railway building and state aid extended from 1835 to 1849, during which there were no state railroads. The first general law regulating Prussian railways was passed in 1838—comprehensive and detailed, providing for strict governmental *control*. From 1843 to 1849 the state assisted various private railways by guaranteeing a minimum interest to takers of stock, reserving to itself the right to take over the lines if the companies proved unable to profitably operate them.

II. The first period of state railroads lasted from 1850 to 1880, during which private and public lines were co-existent. The first state railroad, constructed for military reasons, was opened in 1850, and at the end of that year amounted to 54 miles in length. By 1880 Prussia had built 5,350 kilometers and had taken over of private lines 700 kilometers—less than 435 miles. From 1862 to 1878 was a period of speculation and general railway development, during which many new railroads were projected.

III. State railways predominant, 1880 to the present time. In 1878 a definite policy of nationalization for all Prussian railways was inaugurated, including the purchase of existing private lines and the extension of the state railroads. Beginning in 1880, by 1886 the state had acquired about 12,800 kilometers and had built 2,000 kilometers<sup>1</sup> more. Since that date, and up to April 1, 1905, it has built 10,000 kilometers and bought or secured by lease 3,300 more. Only in the years 1887, 1890, 1893, 1895, 1897 and 1903 did it acquire more than 100 kilos a year, while during the same period it has constructed from 300 to 680 kilos annually.<sup>2</sup> In 1895 the

<sup>1</sup>A kilometer is .6214 of a mile.

<sup>2</sup>Geschäftliche Nachrichten für den Bereich den vereinigten preussischen und hessischen Staats-eisenbahnen, Teil I. Berlin, 1906, pp. 19, 20.

state administrative system was reorganized, simplified and centralized, and in 1897 the Hessian railways—somewhat less than 600 miles—were incorporated in the Prussian system, which also operates the imperial lines in Alsace-Lorraine. From 1850 to 1880 the state built, during the next six years bought, and from 1887 to the present time built again, mainly. At the present time, more than nine-tenths of the railway mileage of Prussia is owned and operated by the government.

### *Classification of Prussian Railways.*

The law of 1838 classified Prussian railways under two heads:

(1) Main lines (Hauptbahnen)—standard gauge, important roads, nearly equivalent to our “trunk lines.”

(2) Branch or feeder lines (Nebenbahnen), also of standard gauge, of secondary importance, yet a part of the general railway net. There is no intrinsic difference between the two classes as far as track, roadbed, etc., are concerned. Fewer and slower trains, less mail, etc., are the signs of difference in traffic importance rather than in essential equipment.

A later law—that of 1892—made three additional classes:

(3) Local railways or “light railways” (Kleinbahnen), which serve local rather than through traffic, and correspond roughly to American suburban or interurban railroads, operated usually by steam. These are held to be no part of the general traffic system and are subject to different regulations from (1) or (2). We may, therefore, omit “Kleinbahnen” from this account of the general Prussian railway service, noting only that if a light railway attains sufficient importance it may be transferred into the class of branch railroads (2), becoming an integral part of the general system.

(4) Small private feeder branches (Anschlussbahnen).

(5) Isolated private roads, not operated by locomotives, are of still less importance, and have no part in the discussion of the public traffic system. We may, therefore, confine our attention to the two main classes first enumerated and from an American viewpoint class them, for many purposes, as one.

There are 21,017 miles (33,822 kilometers) of railway (main and branch lines, standard gauge) operated by the Prussian state; and 1,477 miles of standard gauge railroad operated by private

companies, of which 265 are classed as main line (Hauptbahnen.)<sup>3</sup> Most of this lies in Prussia, except the Hessian roads and the imperial lines in Alsace-Lorraine—some 2,500 miles, operated by Prussia. During the year 1904-5 the state built or completed 314 miles of track and purchased 34 miles. By April 1, 1907, from the budget estimates,<sup>4</sup> there will be 35,107 kilos of standard state railway in operation—21,816 miles, besides 150 miles of narrow gauge state railway.

This large mileage, three-fifths of all Germany's and twice the size of the Pennsylvania System, is operated by the Prussian Minister of Public Works and his railway administration, consideration of which naturally falls under four heads:

I. Control of the Prussian railways by the Imperial Government.

II. The Minister and the system of Directorates.

III. The Advisory Councils.

IV. Other administrative bodies.

#### *I. Imperial Supervision.*

It may be well to recall at the outset that Prussia, the largest and most populous of the states of Germany, is not coextensive with the empire. Above Prussia, Bavaria, Baden, Saxony, and the smaller states stands the German "Reich"—and the control of the Prussian state railways by the imperial governments merits a brief consideration. If we imagine the State of New York to own and operate the railways within its borders, and to operate by lease those in Connecticut and Rhode Island also, we have a situation roughly corresponding to that in Germany, where Prussia not only owns and operates 18,000 miles of railways within its own borders,

<sup>3</sup>The mileage April 1, 1905, was divided as follows:

1. Standard gauge state railways .....	33,822	kilometers
2. Narrow gauge state railways .....	250	"
3. Anschlussbahnen (state railways) standard and narrow gauge .....	401	"
4. Private railways, standard gauge, main and branch lines .....	2,377	"
5. Private railways, narrow gauge .....	332	"
6. Local railways (private kleinbahnen) .....	7,178	"
7. Street railways (strassenbahnen) .....	2,349	"

Bericht über die Ergebnisse des Betriebes der vereinigten preussischen und hessischen Staatseisenbahnen, 1904-5. Berlin, 1905, pp 1-4. Also, Geschäftliche Nachrichten, 1906, pp. 8, 14, 15.

<sup>4</sup>Geschäftliche Nachrichten, 1906, p. 8

but manages also as part of its system the railroads in Alsace-Lorraine and Hesse—over 2,500 miles more.

By the imperial constitution adopted in 1871, the empire has the right of control and legislation on the subject of railways.<sup>5</sup> It may build railroads through any state, even against the opposition of that state.<sup>6</sup> (As a matter of fact, it has never exercised this right, but has left the construction and operation of railways to the various states.) Further, under Article XLII, the federal government binds itself to cause the German railways to be managed in the interest of the general traffic, as a single system, with uniform standards for new lines. Regulations for the operation of the roads shall be uniform, rolling stock shall be amply furnished to meet the demands of traffic;<sup>7</sup> time tables, freight trains and direct transfers of goods are provided for,<sup>8</sup> and, most important, the federal government reserves the right to control the tariffs,<sup>9</sup> and to unify and reduce rates on all German railways.<sup>9</sup> In times of flood or famine, railways shall carry grain, flour, potatoes and other provisions at reduced rates.<sup>10</sup> And finally, for military purposes, they are to meet any demand of the federal authorities for the use of the railways for the national defense; and troops and war munitions are to be transported at uniformly reduced rates.<sup>11</sup>

Constitutionally, therefore, the empire may exercise a wide control over all the railways, state or private, in behalf of the general economic welfare and for the military defense of Germany. In actual operation, this control is potential rather than actively exerted. The imperial railway office (*Reichseisenbahnamt*), at Berlin, receives reports from the railway directories of the several states, as to stretches of new track opened, new stations, changes in tariffs, etc.; it has the right to demand information of any railway or railway division, and to investigate it personally. Certain regulations besides, particularly as to branch lines (*Nebenbahnen*), must be approved by the imperial railway office. Its influence is further exerted to secure on all the German railroads unity of regulations and rates.

<sup>5</sup>Art. IV, 8.

<sup>6</sup>Art. XLI.

<sup>7</sup>Art. XLIII.

<sup>8</sup>Art. XLIV.

<sup>9</sup>Art. XLV.

<sup>10</sup>Art. XLVI.

<sup>11</sup>Art. XLVII.

II. *The Directories.*

The administration of the 21,000 miles of Prussian railway lines, out of a total of 32,000 in all Germany, is in the hands of (1) the Prussian Minister of Public Works, (2) the Royal Railway Directories, assisted by (3) certain Advisory Councils. It will not be necessary to discuss the system prior to 1895, when it was entirely reorganized, simplified and centralized.

At the head of the system stands the Minister of Public Works,<sup>12</sup> with an important undersecretary<sup>13</sup> and a staff divided into departments<sup>14</sup> of construction (Bauabteilung), traffic (Verkehrs-), management (Verwaltungs-), and finance. General administrative oversight of the whole Prussian system—private as well as state railroads—is the duty of the minister's office. All special export tariffs and through rates are subject to his assent; commodity rates likewise; and both new rates and the changing of old ones must be approved by him.<sup>15</sup>

In the hands of the Royal Railway Directories, however, lies the actual fixing and adjusting of rates, freight and passenger, and administrative questions in general. Of these there are twenty-one, one having been added at the time of the incorporation of the Hessian railways with the Prussian system. They are located with centers as follows: Altona, Berlin, Breslau, Bromberg, Cassell, Cologne, Danzig, Elberfeld, Erfurt, Essen, Frankfurt-on-the-Main, Halle, Hanover, Kattowitz, Königsberg, Magdeburg, Mainz, Münster, Posen, St. Johann-Saarbrücken, and Stettin.

Each directory is a board of directors, having under its control all matters pertaining to the stretch of track within its jurisdiction. The directorate corresponds roughly to the division on the American railway. One directory may manage more mileage than another, depending on the density of traffic. The Berlin directory, for example, manages only 577 kilometers (in 1905), while that of Königsburg directs 2,276 kilometers of track, and Halle 1,970 kilometers.<sup>16</sup>

At the head of the directory is a president: two alternates, an

<sup>12</sup>In 1906, Herr Budde.

<sup>13</sup>In 1906, Herr Fleck.

<sup>14</sup>Universal Directory of Ry. Officials, London, 1904.

<sup>15</sup>Sammlung von Vorschriften betreffend die Gütertariffe. Berlin, 1902, pp. 26, 27.

<sup>16</sup>Geschäftliche Nachrichten, Teil I. Berlin, 1906, p. 11.

Oberregierungs-rath and an Oberbaurath, are chosen from the members to preside in the absence of the president.

The directory is most important. Here is lodged the responsibility of fixing and altering normal freight rates and passenger fares, commodity rates, preferential tariffs, export rates, changes in freight classification, and the whole administrative work of the division. Subject to control indeed by the minister, and assisted by advisory councils, the directories are the centers of the Prussian railway system.

Subordinate to each directory are four offices or sub-departments (Inspektionen), which have charge of the actual local management: (1) for traffic (Verkehr), (2) operation (Betrieb), (3) technical matters (Maschinen), and (4) machine shops (Werkstätten).<sup>17</sup> They are controlled by rather definite rules and regulations, only the directories having large discretionary power. The directorate at Altona, with a board of seventeen members, has thirteen operating managers, six machine "inspectors," four managers of machine shops, and five traffic managers. Berlin, with a directory numbering twenty-five, has nine in the operating department, two for "machines," eight for shops, and four traffic managers. And so they vary with the needs of the varying branches of the service. The duties of the machine shop and technical-mechanical (Maschinen) inspectorships hardly require explanation. The work of the traffic manager is to bring the public in his district into close touch with the railways, while the operating managers have charge of the running of trains, the maintenance of way, and track inspection.

Besides these four departments there are special construction offices (Bau-abteilungen) created by the Minister of Public Works when needed, for the overseeing of extensive track-building operations, sometimes independent of the directories, sometimes closely connected with them, but usually with duties carefully laid down by law.<sup>18</sup> The telegraph department, formerly classed as one of the Inspektionen, was abolished April 1, 1902, its work being merged partly in the general supervision of the directory, partly in the operating department.<sup>19</sup>

Each directory has its central office, with clerks, treasurer, and

<sup>17</sup>Bericht über die Ergebnisse des Betriebes der vereinigten preussischen und hessischen Staatseisenbahnen. 1904. Berlin, 1905, p. 12.

<sup>18</sup>Sonderabdruck aus Archiv für Eisenbahnwesen, 1905, pp. 313, 320.

<sup>19</sup>Geschäftliche Nachrichten, 1906, p. 30.

its own bookkeeping department. The methods of keeping accounts were much simplified by the reorganization in 1895, the amount of statistics required lessened, and the number of clerks reduced, effecting a saving of nearly \$5,000,000 a year.<sup>20</sup>

Besides the strictly divisional duties of each directory—those pertaining to its own territory—certain general matters affecting the whole Prussian service are in charge of particular directories. The office at Magdeburg, for example, has charge of the car distribution for all Prussia; another directory controls the ordering of rolling stock; others the purchase of roadbed materials, rails, ties, etc.; workshop supplies; accounting and auditing for the general service; and the appointment of minor officials. There are, besides, made up from various directories, special committees on technical questions, such as locomotives, passenger coaches, brakes, telegraph and block signals.

The directories, then, are the most important and essential part of the Prussian railway administration, possessing, as they do, general control over the fixing and altering of freight rates and passenger fares, commodity rates, preferential tariffs, printing of schedules, entering into agreements with other German railways, etc. It is the directories which co-ordinate the technical and administrative elements so that unity of operation results; and to them is due in no small measure the success of the Prussian railway system.

### *The Control of Private Railroads.*

Railroads owned and operated by private companies, serving public traffic, are also subject to the control of the directories, and require a brief consideration. Private railways in Prussia at the present time are few and of minor importance;<sup>21</sup> the only one with over 100 miles of track in 1905 was the Prussian Southern Railway, with 150 miles. The Prussian Government at the beginning regulated strictly the construction of all railroads, aiming to prevent the building of unnecessary lines. A company wishing to build through a certain district had to prove to the Minister of Public Works that existing lines were not sufficient; that the proposed road would serve the public interests; and that it was practical and permissible from a military standpoint. Detailed plans of the whole route must

<sup>20</sup>Collier—Report on Prussian Railways. 1902. (British Diplomatic and Consular Reports, No. 574. Also, Archiv für Eisenbahnwesen, 1905, pp. 326-329.

<sup>21</sup>This does not include local and street railways; only *main lines* and branches.



be submitted, together with the permission of local foresters to traverse tracts of woodland, and the consent of other local authorities. After construction, the state inspected the road, its maintenance, operation and rates, and exercised a far-reaching control. Railways already in existence were protected by the reluctance of the state to grant new charters.

With the almost complete nationalization of the railways, however, state control of private lines has ceased to be an important question: it is interesting only in connection with our American policy toward railroads. In Prussia, interest centers not about public control of private railways, but how best to manage the state-owned lines.

### III. *The Advisory Councils.*

Closely associated with the directories, and provided for by law, are certain Advisory Councils—nine Circuit Councils and a National Council, representing the railway shipping interests and bringing into close touch with the railway management those who use it most. The Circuit Council (*Bezirkseisenbahnrat*), composed as it is of representatives of chambers of commerce, boards of trade, lumbermen, millers, foundrymen, dairy associations, iron and steel manufacturers, beet sugar men, etc., etc., knows most intimately the needs of the commercial classes. It may recommend to the directory changes in rates, in classifications of freight, in operating rules, etc., as needed by certain industries or the shipping interests as a whole. These recommendations the directory is bound to carefully consider; it is required by law to consult the council; it may ask its advice on any question connected with the service, and, while not compelled to adopt the council's recommendations, usually gives them most careful consideration.

As there are nine councils and twenty-one directories, one council advises more than one directory. The standing committee of the council hears petitions of shippers, complaints, and first debates thoroughly matters which it later presents to the council.

The National Council (*Landeseisenbahnrat*) bears the same relation to the Minister of Public Works that the circuit council bears to the directory. It consists of forty members, who hold office for three years; ten of them are appointed by the various Prussian state ministers, and thirty are elected by the circuit coun-

cils from residents of the city or province in which the circuit council acts. They represent agricultural, manufacturing, forestry, and trade interests. The national council meets twice a year, and considers general questions, such as the proposed budget, rates, general freight classifications, etc. It submits its report to the Prussian Landtag (Parliament), as well as making recommendations to the Minister of Public Works.

The councils bring railway and shippers together; railway officials learn the needs of shippers, while commercial bodies and shippers understand the railway, its policy and problems.

#### IV. *Administrative Adjuncts.*

Other bodies which play a more or less important part in determining Prussian railway rates and regulations are:

1. The General Conference of German railways—an imperial body, composed of members representing all the German railways, both state and private. Of 322 members in 1901, apportioned according to mileage, the Prussian state railways had 139 votes, Bavaria 28, Saxony 16, Alsace-Lorraine 11, Baden 10, etc. This conference discusses subjects of interest to all the German railways—not Prussia only—interstate rates, freight bills, etc. It is a voluntary advisory body, and does for Germany as a whole somewhat the same work as the national council does for Prussia.

Subordinate to the General Conference is the *standing commission*, which holds sessions with another subordinate body, the committee of shippers (Verkehrinteressanten), and prepares matters for consideration by the conference.

2. The Society of German Railway Managements, which includes more than German railways—those in Holland, Belgium, Roumania, Austria, Hungary, Bosnia, and Russian Poland. Both state and private railroads are eligible. It is concerned chiefly with questions of uniformity. It was instrumental in securing the treaty of Berne (1890), under which it deals with through rates, uniform bills of lading, international routings and customs house regulations.

This, then, is the Prussian system of state railway administration—Advisory Councils, responsible Directories, a Minister of Public Works, with general oversight. Owned and operated by the state, the railways are managed in accordance with a definite national policy—the economic development of Prussia as a whole, and Ger-

many, the industrial welfare of all parts of the state, and for the military protection and strengthening of the nation.

*Labor Conditions.*

Toward its employees the policy of the state has been liberal. Pension funds are provided for sick and disabled employees, and for those grown old in the railway service of the state. To these funds every workman contributes, and the administration pays an equal amount. In 1900 the old age pension fund amounted to \$15,000,000. Dwellings also are erected for workmen, who are obliged to live near their work and are unable to obtain houses at a reasonable rate, which are rented to them at a low figure. In 1899, 30,840 such dwellings had been erected out of the funds at ordinary disposal; in 1905, the number had increased to 40,800.<sup>22</sup> Moreover, hours of labor are strictly limited for all classes of employees, long continuous unrelieved work being forbidden by law, and the law enforced.

In the 486 machine shops, in addition to the usual work, 2,439 apprentices were being trained (1905) for future service as machinists, repairmen, etc., besides 1,162 apprentices in special machine shops.<sup>23</sup>

There were on April 1, 1905, about 400,000 workmen and officials employed on the Prussian state railways.<sup>24</sup>

*Engineering and Technical Results.*

Improved passenger coaches are being put on, more like American cars than on other continental roads, with end-doors, wash rooms, vestibules, etc. The Prussian freight cars, always smaller than those in the United States, but larger than those in England, are being increased in size, to hold twenty and thirty tons;<sup>25</sup> and steel cars are coming into use.<sup>26</sup> Electric traction has been experimented with—a third-rail system. Westinghouse brakes, steam heat and gas lighting for passenger cars, and the adoption of a block signal system indicate that for European railways the Prussian are making good progress. In 1905 there were 32,847 telephones

<sup>22</sup>Geschäftliche Nachrichten, 1906, p. 119.

<sup>23</sup>Bericht über die Ergebnisse des Betriebes, 1904-05, p. 15.

<sup>24</sup>Geschäftliche Nachrichten, 1906, p. 118.

<sup>25</sup>A German ton equals 2,204 pounds.

<sup>26</sup>Bericht, 1904, p. 23, 1906.

in use in the railway service, of which 5,467 were installed during the preceding twelve months.<sup>27</sup>

### *Financial Results.*

The capitalization of the Prussian-Hessian system, about \$1,952,750,000 in 1899, amounted in 1905 to \$2,225,000,000,<sup>28</sup> about \$105,800 per mile. The average net profits amounted in 1903-4 to 7.12 per cent and in 1904-5 to 7.17 per cent of the capitalization. The excess of earnings over disbursements, which has amounted each year since 1894 to \$100,000,000 or more, is applied, first, to pay the interest on the railway debt; then, except that a small sum (\$500,000) may be used to meet any deficit in the ordinary state budget, the next claim is three-quarters of one per cent of the total railway debt (not the unextinguished portion) for a sinking fund; then, any balance may be invested in new lines or be paid to the government for general expenses. From 1881 to 1899 \$350,000,000 was so turned over to the government. For the year 1904-5 the net profits amounted to \$158,190,000.

### *General Conclusion.*

"The results of the nationalization of the railroads in Prussia have been highly satisfactory," says Prof. Emory R. Johnson,<sup>29</sup> "particularly in its financial results." Its success has been due in no small part to the well articulated, flexible and elastic system of administration. A definite head, well defined control and responsibility all the way down from minister to depotmaster, with shippers in close touch with the railway management, result in rates which change with the changing needs of commerce, and in a service adequate for Germany. Preferential rates whenever granted are granted openly, after full and public discussion; there are no secret rebates. Prussia has satisfactorily solved the problem of government ownership. Would the United States be as successful?

<sup>27</sup>*Geschäftliche Nachrichten*, p. 34.

<sup>28</sup>*Geschäftliche Nachrichten*, p. 26; 8,902,921,000 marks for standard state railways, besides 17,000,000 marks in narrow gauge, and 12,000,000 in state "Anschlussbahnen" not in the general system. A mark equals 23.8 cents.

<sup>29</sup>*American Railway Transportation*, p. 342.

*Outline of Prussian Railway Administration.*

I. Minister of Public Works an undersecretary and staff .....	1. 21 Royal Directories, each directory having four departments or "inspektionen" .....	{ (a) Traffic (Verkehr). (b) Operating (Betrieb). (c) Technical (Maschinen). (d) Machine shop (Werkstätte).
	2. Construction in the hands of special construction departments (Bau-abteilungen), appointed by the Minister and usually under the control of the directory.	
	3. Certain directories have entire charge of special work for the whole system—car distribution, purchase of rails and ties, accounting, purchase of rolling stock, appointing minor officials, etc.	
II. National Advisory Council .....	Nine Circuit Councils, composed of representatives of commercial bodies, which make recommendations to Directories.	{ A standing committee of the council prepares matters for its consideration.
III. Imperial and International advisory bodies .....	{ 1. General Conference of German Railways considers interstate matters with the help of its... 2. Society of German Railway Managements considers international traffic questions, under Berne treaty.	{ (a) Tariff Commission. (b) Committee of Shippers.
IV. Imperial Railway Office at Berlin .....	{ Has general supervision over foregoing bodies as far as they affect the German Empire as a whole.	

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